Small Is Fabulous

By Curt Gabrielson

In *Small Is Beautiful,* published in 1973, economist Ernst Shumacher described how small economic systems can achieve meaningful, sustainable development. Small, when referring to science centers, can be equally beautiful. In fact, small science centers are fabulous, multifaceted magnificence. Small science centers can be cost effective, super-responsive to communities, easily kept up-to-date, and best of all, ultra-accessible.

I founded a community science workshop (CSW) in Watsonville, California and directed it for more than a decade, relishing its smallness on a daily basis. What is a CSW, exactly? It's a public space, located directly on a path of significant community kid foot traffic. The mission is "to expand knowledge, thinking, and imagination, with tools of discovery and things to discover." That requires piles of interesting junk. The space is the inverse of a conventional science center: CSWs are mostly shop, with a few exhibits around the edges, garnished with animals, relevant reference books and a garden. Participants build their own stuff and tinker with the exhibits to get more ideas. Staff members focus on raising questions and enthusiastically accompanying visitors in tinkering toward their dreams. This staff—adults and youth—are local community members.

THE CSW VISIONARY

The founder of CSWs, Dan Sudran, started pretty small. His original CSW space was his garage in the Mission District of San Francisco. It wasn't your

Dan Sudran, the "grandfather" of CSWs, with his rocks, fossils, and science books at the Mission Science Workshop in San Francisco. Photo by Curt Gabrielson

average garage; it was full of oscilloscopes, rocks, fossils, bones, and plants as well as a full set of old tools. He soon received institutional support and birthed a network of about 10 CSWs.

The City of San Francisco declared October 27, 2016 Mission Science Workshop Day in honor of Sudran's quarter century of CSW excellence. (Though the formal CSW network is not currently functioning, sites in San Francisco, Fresno, Watsonville, and Greenfield are still well-linked and growing.)

It's important to realize Sudran never went big; he never had more than about 2,500 square feet (232 square meters) of space and 10 staff. Yet he served tens of thousands of kids and community members each year. We do the same today in Watsonville with less than 1,000 square feet (93 square meters) of space. We have mobile units and programs that serve 15 local schools and eight local parks and community centers, but each space is small and each program is intimate.

These CSWs were running strong a full decade and a half before the first murmurs of makerspaces. This proves that it's 100% possible to have a great, kid-driven, full-on STEAM-filled community space without 3D printers, robots, or arduinos. This is not to say that centers with these elements are on the wrong track, but priorities must be kept straight. Our priorities at the CSW are actually C-W-S: community first; a hands-on, tool-rich feast of the world second; and science last, as a radical way of linking kids and their families to the universe. If, on the other hand, your center is driven primarily by the latest technological wizardry, there's a good chance you've bypassed the community, and perhaps bypassed the universe as well. You have to stay small in order to not miss the universe!

FROM WATSONVILLE TO TIMOR-LESTE

In 1999, a small nation in Southeast Asia called Timor-Leste finally attained independence from brutal occupation by the Indonesian military, which was fully supported by the U.S. government. Throughout the late 1990s I had done solidarity work for Timor-Leste from the United States, and I felt a responsibility to go and help rebuild once the Timorese were free. I've now lived there off-and-on

Snakes and other interesting creatures are the focus of much attention at the Greenfield CSW in Greenfield, California. Photo by Curt Gabrielson

University students monitor the operation of a still making palm wine at the central KP in Dili, Timor-Leste. Photo by Curt Gabrielson

for a total of 11 years, and have helped to build five small science centers throughout the nation, with four more in development. They're called *knua pratika* (KP), meaning a place for anything hands-on, inquiry-based, experiential, or tinkering-related.

Like the CSW, KP spaces function as valuable community STEAM resources for kids and also complement the STEAM curriculum in local schools, which is often stultifyingly abstract and divorced from the kids' life experience. We've found that what these kids need most to step into scientific fields is the sweet taste of grabbing it, trying it out, and seeking answers themselves, not more chalk-and-talk, lecture-and-listen. Thus, projects and exhibits at the KPs are based on the needs and desires of the local communities, and offer the full experience of doing science, math, and engineering, while also communicating STEAM in meaningful ways.

Exhibits line the walls of the science center at the Drepung Monastery in Lhasa, Tibet. Photo by Gustavo Hernandez

TINKERING WITH TIBETANS

While in Asia, I've also had the chance to travel several times to India and help fortify small science centers located in Tibetan Buddhist monasteries and nunneries. The exiled Tibetan monastics are learning science along with religion, and thinking carefully about linkages and overlaps. Like the CSWs and KPs, these centers are rich educational islands of freedom and flexibility. The monasteries provide space not only for formal science courses, but also for tinkering workshops. Local students and other community members can stroll in during open-door hours and do whatever they wish with the tools and mostly recycled materials on hand, with assistance

from the monks and nuns on staff. Exhibits are played with until broken and then repaired. No question is ignored. The priority is on learning by means of self-guided exploration. The result: a love of science.

DON'T EXPAND; SPAWN!

When Shumacher's words spotlighted the beauty of small, it sparked enthusiasm in thousands of development activists. Later, some criticized his words when globalization began pressing its heavy boot on the world's economy. Small is not enough, they cried. You must think globally and make good things as big as possible!

Ah, yes, but you can make small as big as you wish! At the CSWs, we've long held that when our sites are full-to-capacity and we can't stuff another kid in, the answer is not to expand but to *spawn:* satellite sites, mobile programs, linked-up part-time programs at other high-need spaces; all of these increase the reach while preserving all the gems of small.

The vision is this: simple, free, inviting spaces full of science glowing in every community across the country, across the world, each one opening the doors of the universe personally to every participant, each one specifically meeting the precise, shifting STEAM needs of those communities, and each one linked to a supportive and nurturing network. Educational heaven, I believe, will be very like this vision. So keep it small, baby! It's fabulous! ■

RESOURCES:

Hub for Community Science Workshops: https://sites.google.com/view/community-science-workshops/home

www.missionscienceworkshop.org

www.timorpratika.wordpress.com

www.scienceformonks.org

Gabrielson, Curt. (2007, Fall). The community science workshop: a new paradigm for informal education. *Hand to Hand,* 21 (3). https://drive.google.com/file/d/1-kJmuCOGDGeiVaaQvqfWQjfdBcVrjqSj/view

Curt Gabrielson *(curt.gabrielson@gmail.com) directed the Watsonville Environmental Science Workshop for 11 years and has published several books on doing science with junk, the most recent of which is* More Tinkering: Kids in the Tropics Learn by Making Stuff.

A well-organized and inviting layout of interesting junk, fasteners, and construction materials, form the core of a CSW. Photo by Curt Gabrielson